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Citizens' Bulletin

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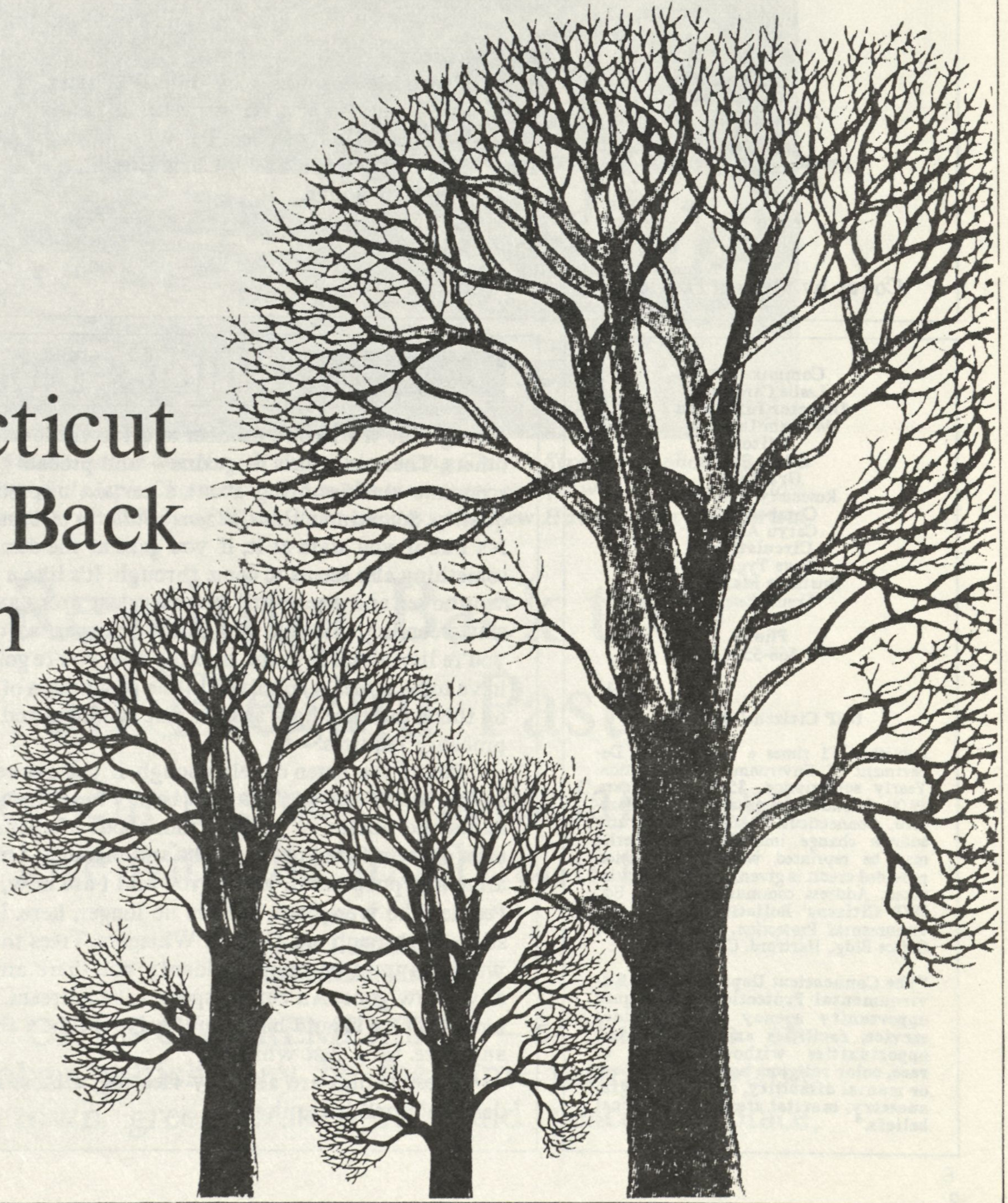
Connecticut Brings Back the Elm



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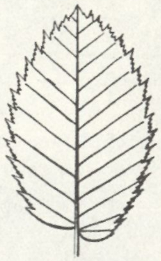

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Cover by Michael D. Klein

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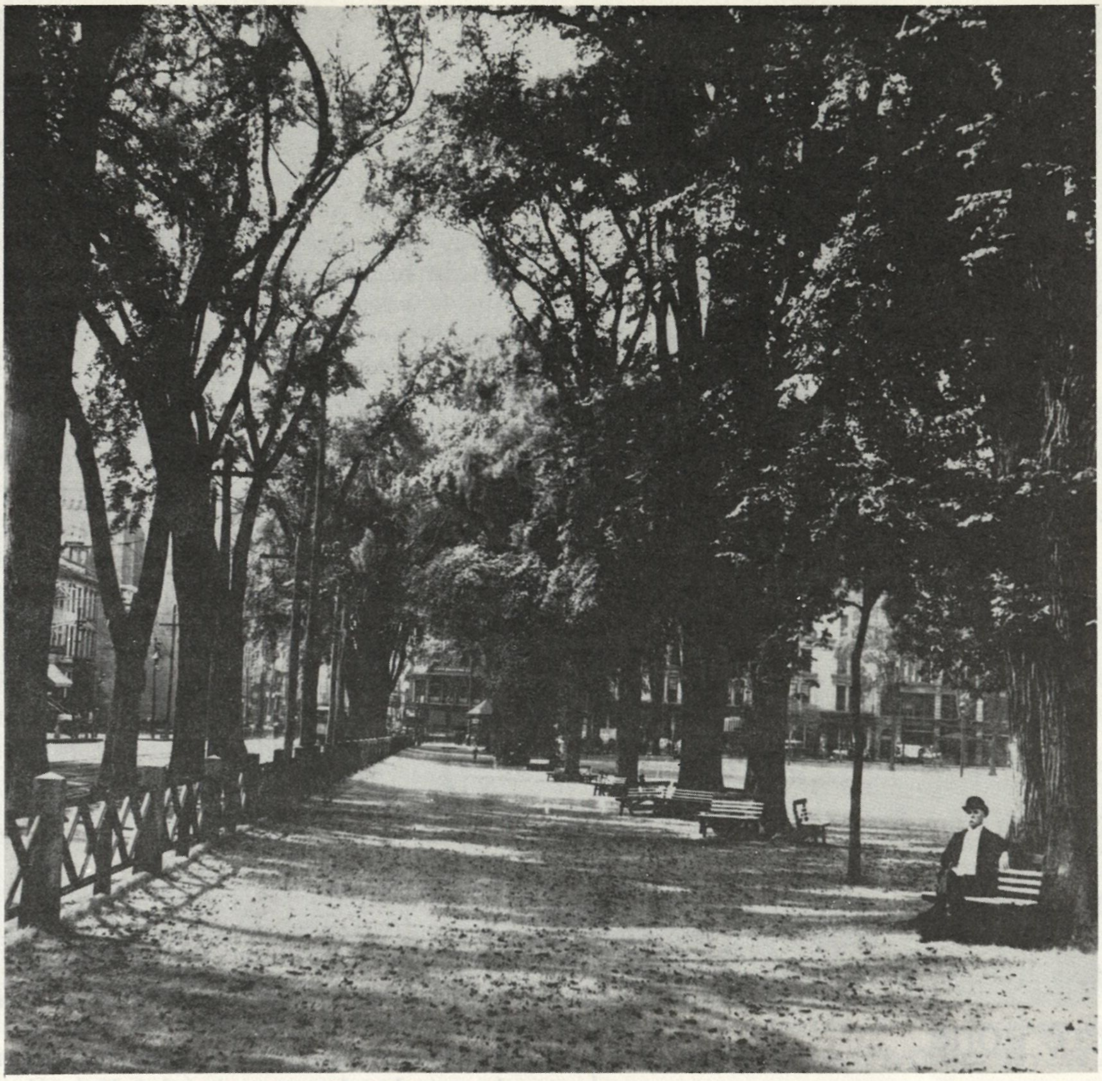
Editor's Note

A magazine works on a number of different levels, some less obvious than others. There is in this magazine — and probably in any operation where economic realities bring about a certain unpredictability — an organic quality. Sometimes, this *Citizens' Bulletin* of ours seems to be, well, alive. It's like if you stare at it, if you gaze at the dummy sheets long enough, something else seems to come through. It's like a kid repeating a familiar word over and over until meaning just drops away, and something else starts coming through. It's like a whisper, soft and subtle, and unless you're listening for it and nothing else, you're going to miss it. Maybe you have to be actually involved in the production of the magazine to pick up on this. I can't see how anyone else would spend the kind of time that it probably requires.

But, if you listen closely enough, if you are very still, you can, I think, in this isue of the *Bulletin*, just barely hear the voices of grandparents, of aunts and uncles, of people from about a century ago, people who now exist only in faded photographs and memory. Once they were strong and alive and purposeful, just as you and I are now, but now, just whispers. People who were once, but are no longer, here. Loss. Things, people, life, slipping through our fingers. Whispers. Trees that we thought somehow would always be there, suddenly not there anymore. Once strong and alive, now gone. An empty space. Like a dream. A man who loved birds more than he should have. Suddenly, the man and the birds are not there anymore. Now just whispers.

These things are all very fleeting, almost not there at all. A very delicate touch is required.

R.P.



The arcade of elm trees on the New Haven Green along Church Street was photographed around 1900 by F. Joseph Chatterton. When the trees were gone, it was as if we had lost a connection with a whole way of life. (Photo courtesy the New Haven Colony Historical Society.)

Reaching Back to an Elegant Past

Connecticut has never really fallen out of love with the stately elm tree.

by
Laura J. Blake
Environmental Intern

SOME OF US CAN REMEMBER -- or think we remember, which may be the same thing -- a time when the town green was a still and peaceful place,

Something happened-
then all the elm trees
got sick and
died and then
were gone.

where children played and, on warm summer nights, couples strolled arm in arm along tree-lined walkways. Dogs chased after sticks, a smiling, patient, blue-uniformed policeman directed the flow of traffic [illegible] the intersection of Main and Elm Streets, and birds swooped off their perches to pick mosquitoes out of the early evening air. It was somehow a nicer time, back then, when things were slower, when people took time to talk to their neighbors, when people even *knew* their neighbors. It was a time, and some of us can still remember it, when the elm trees were there.

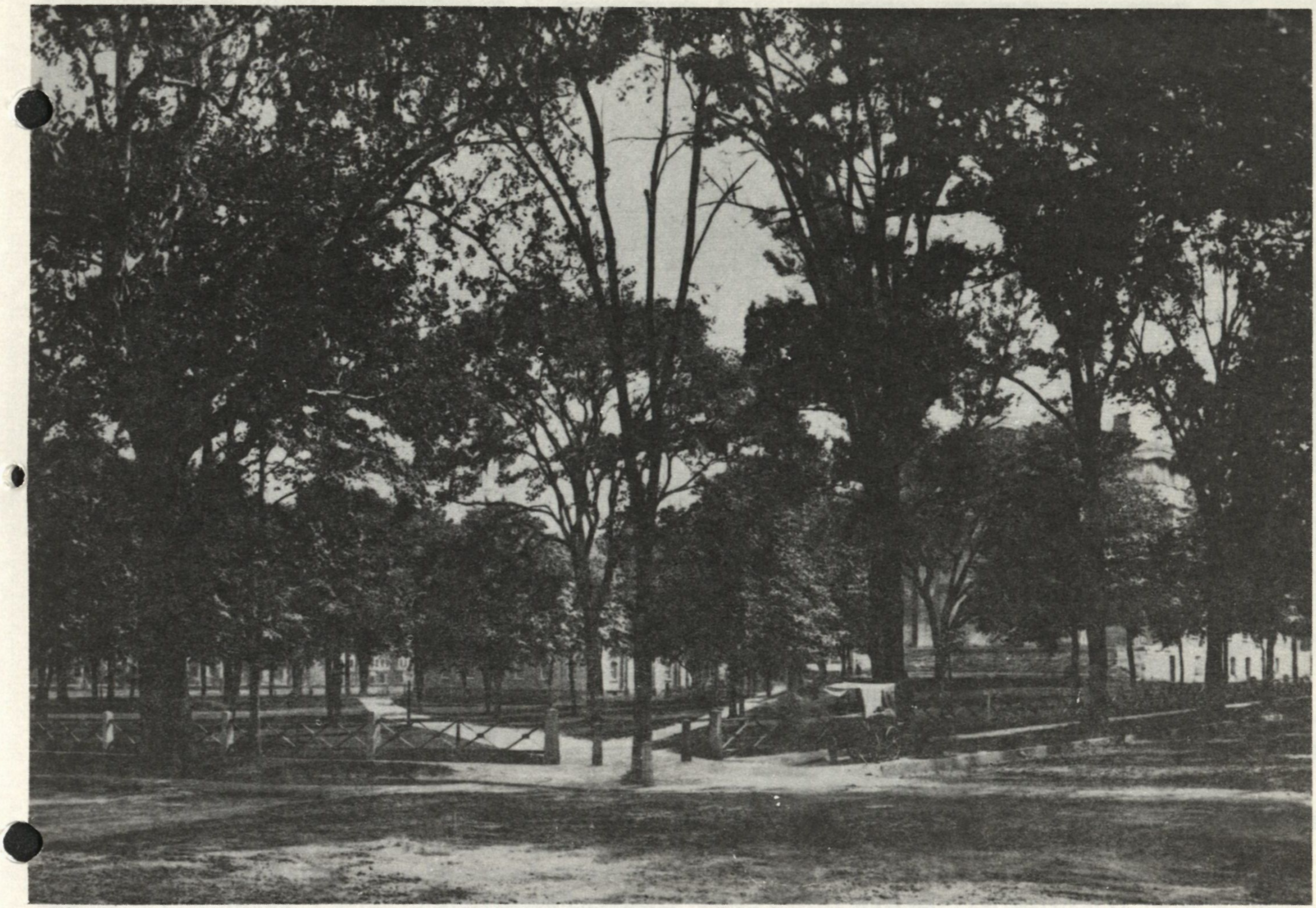
And then something happened, and all the elm trees got sick and died and then were gone. And when the elm trees were gone, it was as if we had lost a connection with a time, with a way of being alive, that was simpler, gentler, and better. Instead of the great, stately elm trees, there was more asphalt and concrete, more cars and trucks and portable radios. And, for anyone who could remember that time when the elm trees were still there, it was very sad.

But now, some people are doing what they can to bring back the elm tree and, if everything goes right, maybe they can even bring back a little bit of that peace and stillness and magic that some of us remember from so long ago.

TREES KEEP US CONNECTED to the calmness of nature. In our modern, crowded cities, that connection is easy to lose and hard to bring back. Bringing the trees back to cities, whose trees have fallen to disease or to the march of progress, has taken careful planning and cooperation among many agencies working throughout the state. Local, state, and national organizations are linking up to bring back the greens of other times.

"People don't realize the cooling effect trees have – they just take that for granted." So says Robert Sheeley, director of Parks and Recreation for the City of New Haven. When speaking in public, he adds also the title, "Director of Trees." Sheeley is one of many who are striving to bring back the historic American elm to city streets and town parks. Bringing back the tree for which New Haven got its famous "Elm City" nickname in 1840 has taken effort. Urban development and Dutch elm disease combined to wipe this tree from the streets, if not from memory.

The elm was a good city tree, not only for its abundance, its pleasing appearance, but also for its high boughs that reach up out of the way of passing cars and telephone wires. Elms are also resistant to pollutants and salt from streets. The six species found in Connecticut – American elm, slippery elm, English elm, winged elm, Wych elm, and Siberian elm – all fall prey to Dutch elm disease. The most popular, American elm (*Ulmus americana*), is very susceptible to the disease, which can fell a healthly tree in a short time. Research is now being conducted both to combat this disease and to develop a new disease-resistant breed.



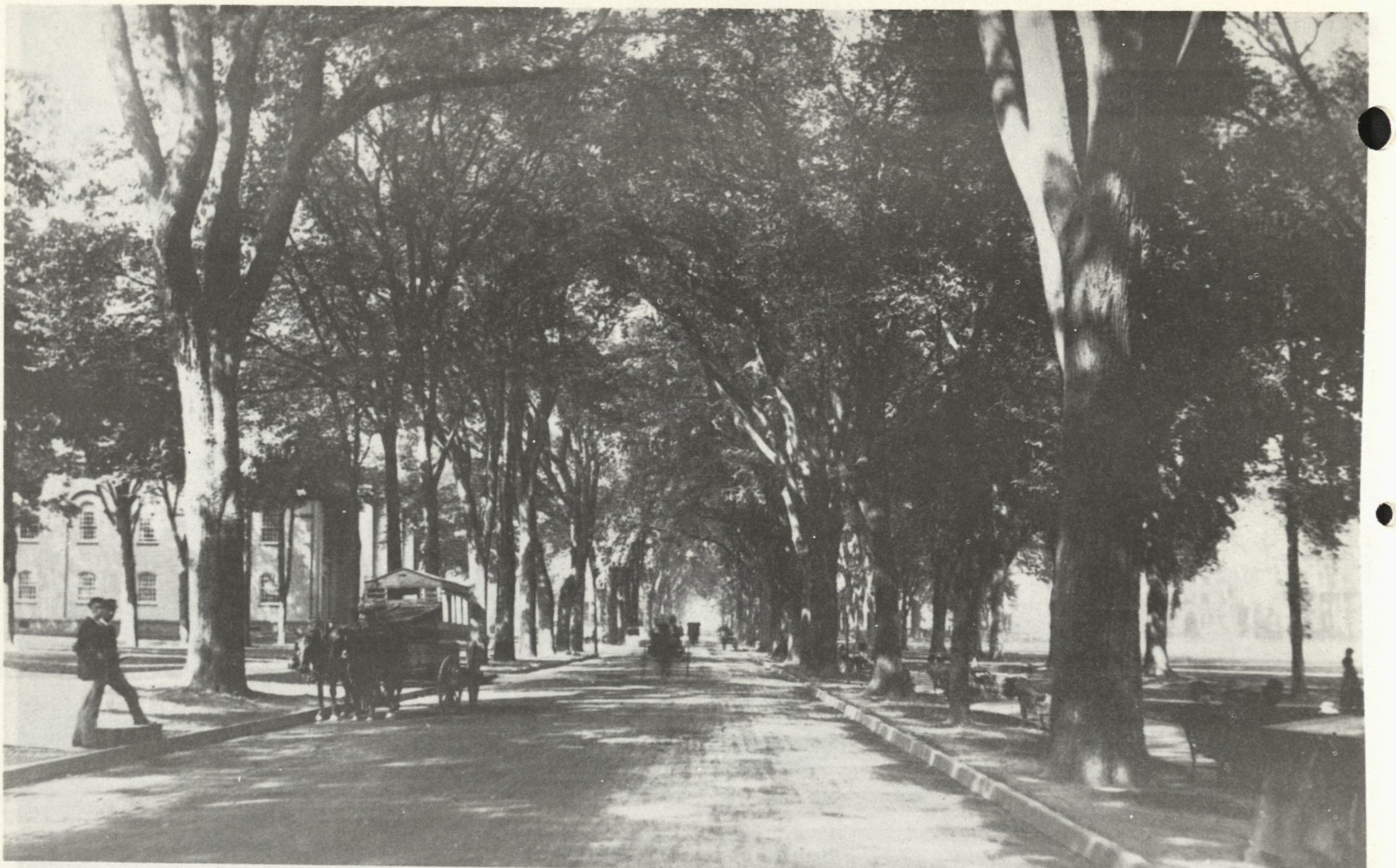
The New Haven Green at the corner of Elm and College Streets, photographed in 1876 by Abraham Silva. A small insect called the bark beeetle has caused the near-total loss of the American elm. (Photo courtesy the New Haven Colony Historical Society.)

RESEARCH HAS BEEN FOCUSED on stopping the spread of a small insect called the bark beetle. In early June, when the sap runs in the elms, the bark beetles feast on the trees by boring holes into the uppermost branches. Their feeding creates wounds that go straight to the central or vascular system of the tree. The beetles contaminate the wounds with fungal spores from their bodies. It is these spores which contain the disease. Damage occurs so quickly that it can be noticed within one season. If the disease is discerned right away, the affected tree can be pruned out. Pruning, however, is often not enough to stop the rapid spread of the beetle. The elm can be completely destroyed only a few years after contact with Dutch elm disease. Even a 100-year-old elm, which looks sturdy and impervious, can be wiped out in seven years.

The bark beetle was carried here from Europe in the early part of this century in elm logs. Once here, it moved quickly, reaching the west coast by the late '30s. Outbreaks of the disease which occurred from then on – the most recent being in the 1960s – have caused the American elm to fade further and further from view. Isolated trees had the best chance of survival. Clusters or forests of elms could be quickly devastated as the beetles moved on to better food sources.

Constant vigilance and treatment with chemicals seemed the only way to save healthy elms from the disease. This method, however, is costly. The DEP's Forestry Bureau provides information on efficient care for elms, as well as the addresses of other agencies currently involved with replanting.

Several facilities now make caring for elms less costly. The Elm Research Institute (ERI) in New Hampshire and the Connecticut Agricultural Experiment Station in New Haven are funding research into combating the beetle and saving healthy elms. Dr. Sandra Anagostakis is conducting research on the biological cycles of the bark beetle. At her lab in the Experiment Station, elms are being injected with the Dutch elm fungal spores so that the disease's progress can be carefully watched and charted. By understanding more about the disease, she hopes to find a way to combat it biologically. She states that for years it was hoped that a crossbreed of elm would be found through the combination of American elm with disease-resistant species, such as Asian elms. "We found that the American elm refuses to crossbreed," says Dr. Anagostakis. "At this time, we are no longer



A view of New Haven Green, looking north on Temple Street, photographed in 1890 by George R. Bradley. The future of the liberty elm in Connecticut looks good. The New Haven Green will never look like this again, but it might be better. (*Photo courtesy the New Haven Colony Historical Society.*)

working in that direction." Research into fungicides and innoculation will continue, however, unless there is some breakthrough in crossbreeding the American elm.

RECENTLY, A NEW DIRECTION in elm research has been taken through the work of the Elm Research Institute. ERI is now promoting and distributing a new species of elm, aptly named the American liberty elm.

Liberty elms were developed by Professor Eugene B. Smalley at the University of Wisconsin. For several years, he worked at raising a new generation of elm from clone plantings of American elms that had survived Dutch elm disease. Through his work, a collection of clones was made, and eight different species were propogated from the cuttings of his trees. The one species found to be most able to resist Dutch elm disease was touted by ERI for its ability to "shake off the disease like we would shake off the common cold." This new species was expected to grow without the constant vigilance.

PROGRAMS DEVELOPED BY ERI advance the planting of liberty elms in many ways. The "Johnny Elmseed" Campaign was developed with the Boy Scouts of America in 1985. For each donation of $25, a scout troop will care for a one-foot seedling until it reaches planting age, usually in three or more seasons. For every 10 donations, ERI provides a six-foot tree ready for immediate planting. Also provided are promotional and instructional material.

Trees are also made available to park departments, community clubs, and individuals. Incentives offered by ERI include a 10-year guarantee on the trees, as well as the donation of one elm for each purchased. For cities, that means ERI matches on a one-for-one basis any tree order; for individuals or clubs, ERI will match the order by donating an equal number of trees to a scout nursery. ERI will also replace any tree that falls victim to Dutch elm disease during the very vulnerable first 10 years.

These programs have generated great enthusiasm statewide. Cities like Norwich, Milford, Stratford, Stonington, Mystic, and New Haven are all planting the liberty elm.

WHEN NEW HAVEN WAS DUBBED "Elm City," it was for a good reason. Not only was the city sprinkled with huge old elms that had been part of the original forest, but in the 18th and 19th centuries, elms were planted in the city. The first map of New Haven indicates that elms were there from the beginning. The Pierpont elms were planted in the early part of the 18th century, to be followed by the Hillhouse elms, as well as elms planted by many other well-known families. So spectacular were these elms in New Haven that the downtown area was thought to be like a great, green cathedral. Outbreaks of Dutch elm disease in the '30s and '60s, along with the unstoppable march of progress, nearly destroyed all these trees. Through the ERI's Johnny Elmseed program, as well as plantings by the city, New Haven is working to fill the gap with liberty elms. East Rock Park has provided a nursery for the boy scouts who are raising the trees. Over $600,000 is being spent this year in improvements and plantings, in addition to the $300,000 spent last year. By the time the Elm City's 350th birthday roles around, the nickname will again be appropriate; hundreds of lovely new elms will again grace the greens and parks.

Louis Dean, supervisor of the New Haven Parks Department, and Dennis Prefontaine, council executive of the Boy Scouts of America, are involved in teaching the proper way to care for, prune, and fertilize the elms. Their efforts mark New Haven area's fourth planting of the liberty elm.

Public support for these tree plantings is an indicator of their popularity. Reporter Paul Donnelly, of *The New Haven Register*, stresses that caring for elms can help band a community together. The fact that these elms need care for at least the first six years of life is reason for a community or family to set a long term goal. "Planting that tree is a commitment to the future," says Donnelly.

There is a rebirth of commitment to bringing back the elm. Along with new plantings, the Elm Research Institute provides methods to care for surviving elms, such as "concientious injector" groups. These groups inoculate healthy surviving elms to prevent infection by Dutch elm disease. Preventative treatment provides a 98-percent survival rate for healthy trees. In addition, if an elm is found to be healthy and has over a 10-foot trunk span, ERI will register it as a historic elm and provide free fungicide and use of equipment for inoculation.

The future of the liberty elm looks good. If our commitment can last through the most vulnerable stages of the trees' growth, then maybe, just maybe, we can bring back not only a tree, but a little bit of an almost-forgotten past, when things were slower, quieter, and nicer. ■

Maybe, just
maybe, we
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back a little
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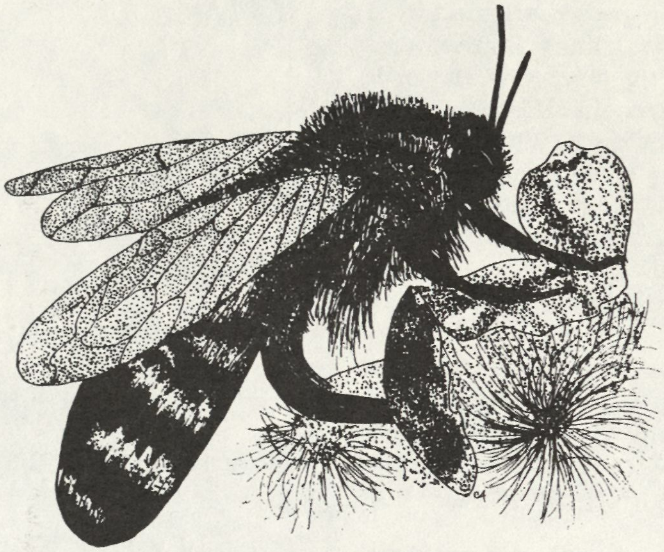
almost - forgotten
past.

For more information on the elm tree and any of these programs, please contact the DEP Bureau of Forestry, 165 Capitol Avenue, Hartford 06106, or the Elm Research Institute, Harrisville, New Hampshire 03450.

Trailside Botanizer



Honeybee
(*Apis mellifera*)

Ohhh, the buzzin' of the bees

by
Gale W. Carter
Illustrations by
Caryn Alleva

DID YOU KNOW THAT INSECTS were present on the earth 200 million years before there were flowers? What did the present pollen and nectar seekers eat before there were flowers? No one knows the answer to this question, but we do know a lot about that special relationship that exists between insects and the flowers of today.

You may have been thrilled by the sight of the stately Joe Pye weed or milkweed entertaining spectacular butterflies, such as the fritillaires and swallowtails. But for sheer variety of insect pollinators, you must get acquainted with narrow-leaved mountain mint. This inconspicuous plant grows in patches in the field, creating a floral display with its numerous white flowers.

MOST OF THE INSECTS that visit flowers are there to seek pollen or nectar, or both. In the process, they carry out cross-pollination between one plant and another.

Who are these pollinators and how are they adapted to interrelate with the flower? What special adaptations do the flowers have to attract the insect?

It will probably come as no surprise that leading the list of insect pollinators are the honeybees, bumblebees and wasps (*Hymenoptera*), followed by many kinds of flies (*Diptera*), then the moths and butterflies (*Lepidoptera*), and finally the beetles (*Coleoptera*).

All other groups of insects have little significance as pollinators.

THE HONEYBEE HAS A HAIRY BODY, special pollen baskets on its legs, and pollen-catching hairs on its tongue. These adaptations help the bee in transporting the pollen that it picks up.

Bees have color vision that works best in the blue and near ultra violet range; however, most flowers are considered bee flowers. Only recently botanists have discovered that certain white and red flowers reflect some ultra-violet rays from dots or streaks on the petals which direct the bee to the center of the flower. It was previously believed that the bee had difficulty seeing these flowers.

Bees favor particularly flowers with an abundant supply of pollen and nectar. The flower, on the other hand, depends on fragrance, a landing platform, and nectar guides to attract the bee. The nectar guides may consist of one or more spots, lines, or dots that differ in color from the corolla as a whole. They show the bee the way to the nectar or pollen after it has landed.

Some examples of bee flowers are Canada lily, mountain laurel, and blackberry.

Bumblebees are attracted to flowers similar to those of the honeybee, but can pry open certain flowers that are tightly closed and that have deeper nectaries. This is because they have heavier bodies than the honeybee and a longer tongue that may be up to five-eighths of an inch.

Typical bumblebee flowers are the turtlehead, bottled gentian, and butter-and-eggs.

WASPS POLLINATE only a limited number of flowers and are not ranked among the best pollinators. Those that do pollinate are largely attracted by the strong scent of the flower and the shape. Some wasps have pollen-collecting equipment in the form of bristles on the front surface of the head. Like the honeybee, wasps see ultra-violet. The helleborine orchid is an example of a wasp-pollinated flower.

FLIES that act as pollinators often resemble small bees, but they have only one pair of wings, as opposed to two pair in bees. Flies are often attracted to flowers that they pollinate because of the odor that the flower gives off and not because of its pollen or nectar. This odor may seem unpleasant to us, but this doesn't seem to bother the fly. Some plants, like the jack-in-the-pulpit trap the flies and keep them inside of the flower until the stamens and pistil mature. Then, they are permitted to escape carrying a load of pollen.

Flyflowers, such as wild ginger and red trillium, have blossoms that resemble the color of decaying meat.

BUTTERFLIES ARE ATTRACTED to flowers that are fragrant; they frequent blossoms that have a landing platform and nectar guides. Butterflies are looking for nectar in particular and carry pollen only incidentally. Butterfly flowers have deep throats and nectaries that are suited for the insect's long tongue that is sometimes equal to the length of its body. Butterflies are thought to be sensitive to a variety of colors including the ultra-violet range.

Butterfly-weed (orange milkweed) and the red wood lily are butterfly flowers.

MOTHS USUALLY FLY only at night, but there are some exceptions, like the hummingbird, or clearwing, moth (*Hemaris thysbe*) that is commonly seen during daylight hours. It has, in addition to its clear wings, a noticeable fanlike tuft at the tip of its abdomen. The hummingbird moth is often seen visiting garden flowers or clover fields looking for nectar.

The nocturnal moths are attracted to heavily scented flowers that usually only open at night. They are fond of flowers with deep tubes and nectaries. The petals of moth flowers are often curved backwards to make them easier to approach. Moths like white flowers because they are more easily seen at night. Moths do not need landing platforms on flowers because they hover close to the flower tube and insert their long tongues.

Bouncing bet and honeysuckles are moth flowers.

BEETLES THAT POLLINATE flowers do so incidentally. They are more

Butter-and-eggs
(*Linaria vulgaris*)

interested in eating the pollen and the flower. This is because they have mouth parts adapted for chewing rather than sucking. They sometimes lick nectar if it is in an exposed place.

Beetles have smooth hard bodies which are not conducive to transporting pollen.

Rose chafers, metallic woodboring beetles, and long-horn beetles are a few species that help to pollinate flowers. Beetles are attracted to flowers by their odor.

Members of the rose and buttercup families are beetle flowers, as are waterlilies and magnolias.

NOT ALL INSECTS found on or near flowers are pollinators. Some insects, such as the assassin bug and ambush bug, are there to prey on the insect pollinators. The crab spider is another animal that lurks in flowers waiting to feed on the pollinators. It makes no web and has the unique ability to change colors to blend with parts of the flower.

THE FLOWER, in addition to having special adaptations to attract insects, may have structural characteristics to repel undesirable insects. One example would be the closed flower of the butter-and-eggs that keeps away small robber flies.

Plants may also have adaptations of the flower stem to discourage certain insects. The trout lily has flowers with slippery stems that make it difficult for some insects to climb, while the hawkweed has glandular hairs on the stem that can trap climbing insects.

THE STORY OF INSECTS AND FLOWERS would be incomplete without considering the nature and importance of both pollen and nectar. Besides its primary use in pollination to transfer genetic information, pollen is a high quality food, rich in protein. Pollen and nectar make up nearly all of the food for bees. Pollen is especially important to bees as food for their larvae. Both these substances play a significant role in the diet of all pollinators.

The surface of each pollen grain is unique with its special spines, warts and ridges. These features are important for attaching to the hairs of an insect's body.

"Pollen glue" is another feature that helps in the transfer of pollen by clumping pollen grains together. The pollen masses in milkweed are of this type and are referred to as *pollinia*. Pollination in this plant is carried out when an insect gets its foot caught in a slit in the milkweed flower and comes away with the *pollinia*, resembling saddlebags, attached to its body. These are transferred by the insect to another milkweed flower.

Some plants have what are called "pollen flowers." They produce pollen and no nectar. Pollen flowers have a large number of stamens that are a different color from the petals. Examples are the buttercup and rose.

NECTAR IS PRODUCED in glandular organs called nectaries. These are usually at the base of the flower that secretes nectar but may be found in all flower parts. In the buttercup, they are found at the base of the petals, while columbine has special, spurred structures which stand erect between the petals.

Nectar is about 40 percent sugar but is also rich in other organic compounds. The sweetness of nectar is influenced by environmental conditions. It is generally sweeter when there is sunshine and the temperature is rising and the humidity is dropping.

As you can see, there is much to learn from observing the relationship between an insect and its chosen flower. You may find it a rewarding experience to delve deeper into these mysteries and make some discoveries of your own. ■

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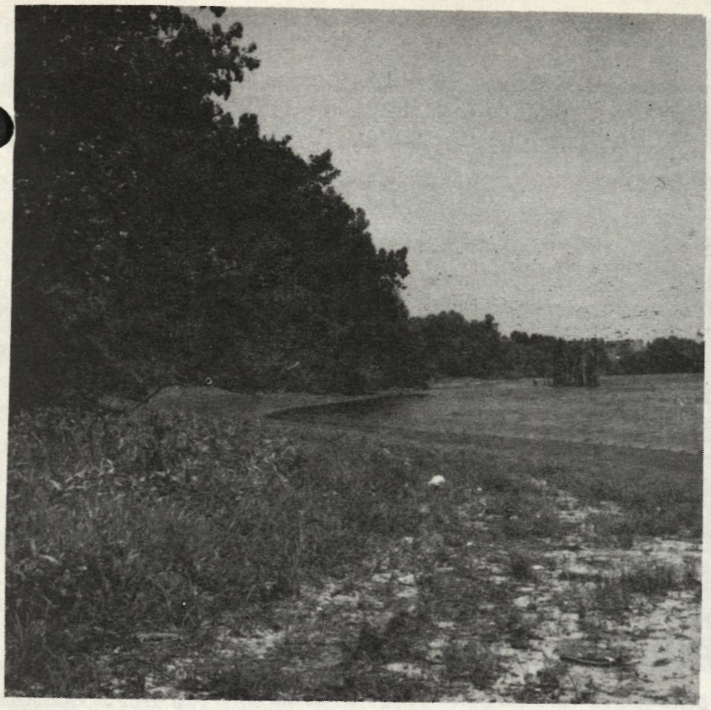
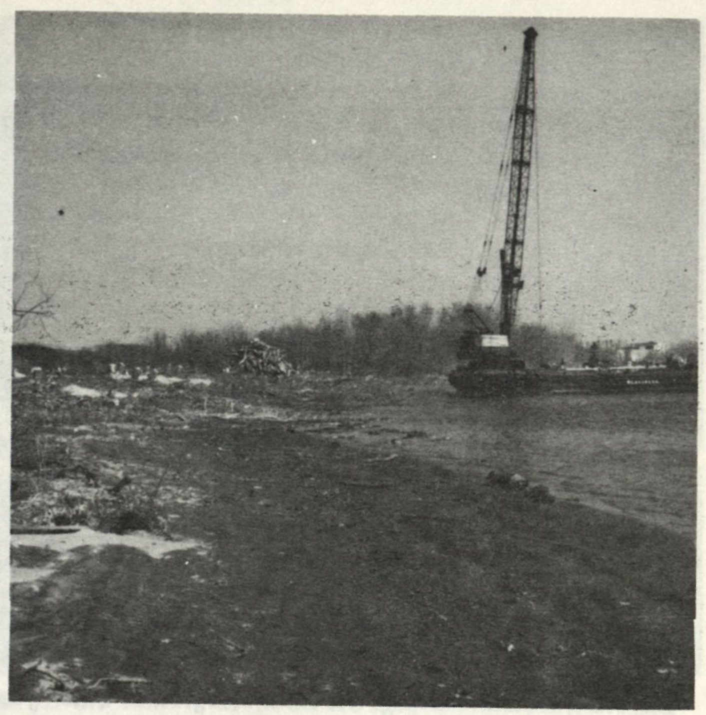
Blackberry
(*Rubus allegheniensis*)





(Left photo) Before the clear-cutting: This photo shows Folly Brook Natural Area, looking north from the inlet into Wethersfield Cove, as it appeared in the fall of 1980. Note the well-established zone of black willow shrubs grading into the cottonwood levee. This protected the inner floodplain from erosion and ice damage. (Right photo) The same area after the clear-cutting. The vegetation on the entire levee has been removed, exposing the inner floodplain to damage from severe floods. The barge adjacent to the riverbank was used to move logs and branches to another site.

Some Notes on the Folly Brook Folly

by

Alan Levere

Senior Environmental Analyst

ALMOST EVERYONE who comes to work for the Connecticut DEP has the opportunity in the first few months to get into the field and observe some of the projects his or her unit is involved with. That was how I got my earliest field training. Back then, I was the new guy and staff ecologist Ken Metzler was the veteran.

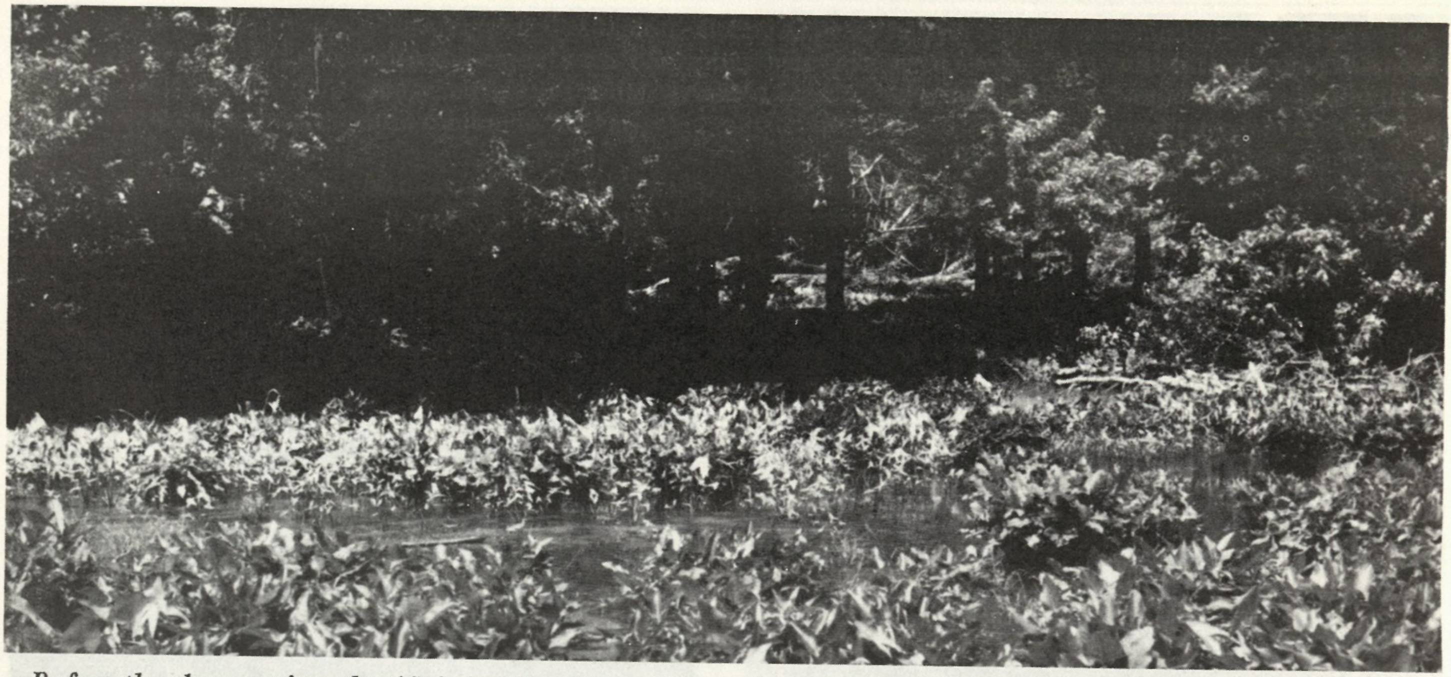
It's been a handful of years since then, but it's funny how well you remember some things that don't seem to make sense at the time.

It was one of those hot days in mid-July. Despite the fact it was nice to be out in the field, we were glad to be working in the shade. Our plan was to do some transects across various sections of Connecticut River floodplain. The process involved documenting vegetative change as elevation increased with distance from the river. In my mind's eye, I saw the change as being a gradual increase in slope as we moved away from the river and up high enough to move out of the floodplain. But there was more to it than that.

Our stop that day was the Folly Brook wooded area, at the Hartford-Wethersfield town line. We hiked in from the north side over large fallen trees and logs from upstream flooding. The logs had come to rest against healthy floodplain trees stout enough to hold them back. These were the big floodplain trees that thrive in damp places -- silver maples, cottonwoods, sycamores, and black willows.

We reviewed a variety of ground-level plant communities existing at different, though lower, elevations of the floodplain. The variation of plants was due to the mini-relief; the difference of just a few inches in elevation was enough to cause the change. Limited by several factors, including soil moisture and duration of seasonal flooding, the individual plant communities were flourishing. As Ken made his field notes, I couldn't help but think how this was almost an impossible area to have right here in Hartford. It seemed even more impossible as we were walking out.

After completing the transect inventories and packing up our equipment, we came across a large fallen tree beside a small area of ponded water. The tree was being used as a perch for birds, birds that Ken could name quicker than they could fly away: green herons, snowy egrets, and great blue herons. There were other birds that made their homes around the ponded areas, under the cover of the trees: wood ducks, mallards, red-tailed hawks, owls,



Before the clear-cutting: the tidal slough and inner floodplain of Folly Brook Natural Area in the fall of 1980. (Photos by Ken Meltzer.)

and both the downy and hairy woodpeckers – birds that like their privacy. It was all new to me, but in fact it was all a matter of record. The area had been studied by ecologists and biologists over the past several years and we were just adding to the already existing inventories.

THAT WAS THEN AND THIS IS NOW. The concepts of floodplain benefits are well known. Root systems hold the soil and help curb erosion. When low-lying land is flooded, the soil absorbs the river water and slowly gives it back to the river after the highest water recedes – a type of natural flood control. This slower-moving water allows nutrient-rich sediments to settle out and accumulate. The trees, in their natural diversity, have a tolerance for standing water; they grow large with the yearly deposition of the spring flood. They provide shade for the plants and animals below. Large, contiguous, unbothered natural areas form a sanctuary for the wildlife that, after years of urban development, have fewer places to go.

Without shade, the soils dry out more rapidly; moisture that would have gone to the river to help keep the water levels constant, even in summer, evaporates; those pockets of plant communities dependent on shade, as well as that same soil moisture, dry up.

We also understand a great deal of how valuable the wetlands are. They provide flood control, habitat for flora and fauna (sometimes unique adaptations are present), river erosion dissipation, enhancement of water quality, simple aesthetics, and educational potential. Oddly, it turns out that this location, one of my earliest outdoor classrooms, has also been a popular spot for university field trips. In fact, some senior members of the DEP staff have trained there in their school years.

People who work with the land like to travel to other locales to observe and compare; they build their own data base in their special field. An ecologist from out of state visited this area a few years ago. In his travels, he had observed forested floodplain wetlands of many of the nation's big rivers – the Mississippi, the Ohio, and others. He was impressed here by the diversity of vegetation and wildlife, the age of the stands of trees, and the fact that it existed at all so close to a downtown area.

So what actually happened to this area that remained undisturbed since it was declared a natural area site over 30 years ago? The following sequence of events was reported in *The Hartford Courant*:

- In 1956, Hartford designated 88 acres of the Folly Brook area as a permanent natural area site.

- In the early 1970s, and right through today, the University of Connecticut and the DEP have conducted ongoing research on this remnant forested floodplain.

- In 1976, Connecticut DEP identified the area as one of 11 types of critical habitat in the state. This specific habitat is also home to some species designated as being "of Special Concern."

- In 1983, a navigational aid was installed at Brainard Field. It could not be made functional. An FAA study later showed the aid might perform correctly if certain trees were cut.

- In the summer or fall of 1987, the Federal Aviation Administration's (FAA) manager of airport planning asked the Department of Transportation (DOT) to 'top' the trees.

- In December of 1987, clear-cutting of trees began on 23 acres.

- In March of 1988, clear-cutting of trees halted. DOT never did check with DEP, citing ignorance as an excuse. Oddly, other DOT units currently have 62 wetland permits pending for other projects statewide.

As of this time over 25 acres of forested floodplain have been clear cut. This means that the state's ever-dwindling critical habitat area has dwindled even further.

PART OF THE PROBLEM is that this section of the forested floodplain is at the start of an outside bend on the Connecticut River. These outside bends take the brunt of erosion from the moving river. About 400 to 500 yards of river bank are now completely bare of vegetation. When root systems die, soil holding capacity diminishes rapidly. Thus, there are sure to be changes as a new equilibrium between river and floodplain becomes established. Only time will tell what the seasonal flooding will do.

Heavy equipment at the site was used to arrange and transport the cut logs to a barge moored in the river. This machinery left its mark deep in the silty wetland/floodplain soils. In many cases, the rhizomes below the surface that sprout new plant life every spring have been destroyed. So, too, has all the above-ground vegetation. Recovery could be difficult.

SO, WHEN ALL THE ACCUSATIONS have been made, when the apologies are offered, and when the brush and logs are all removed, the bottom line is that the trees are gone. Big trees. Ken and I went back and measured three stumps with diameters exceeding 28 inches. The granddaddy was over 90 years old. For now, we can only try to assess the losses and hope for the best recovery possible.

It will be interesting to see the growth of new plant communities. With luck, a fair percentage of saplings will sprout from tree root systems and a good selection of wetland plant seeds will be dispersed in the spring flooding. Perhaps new ponding will form from new patterns of erosion on the now treeless floodplain. It is hoped that there will be sufficient neighboring habitat for the displaced big birds to live.

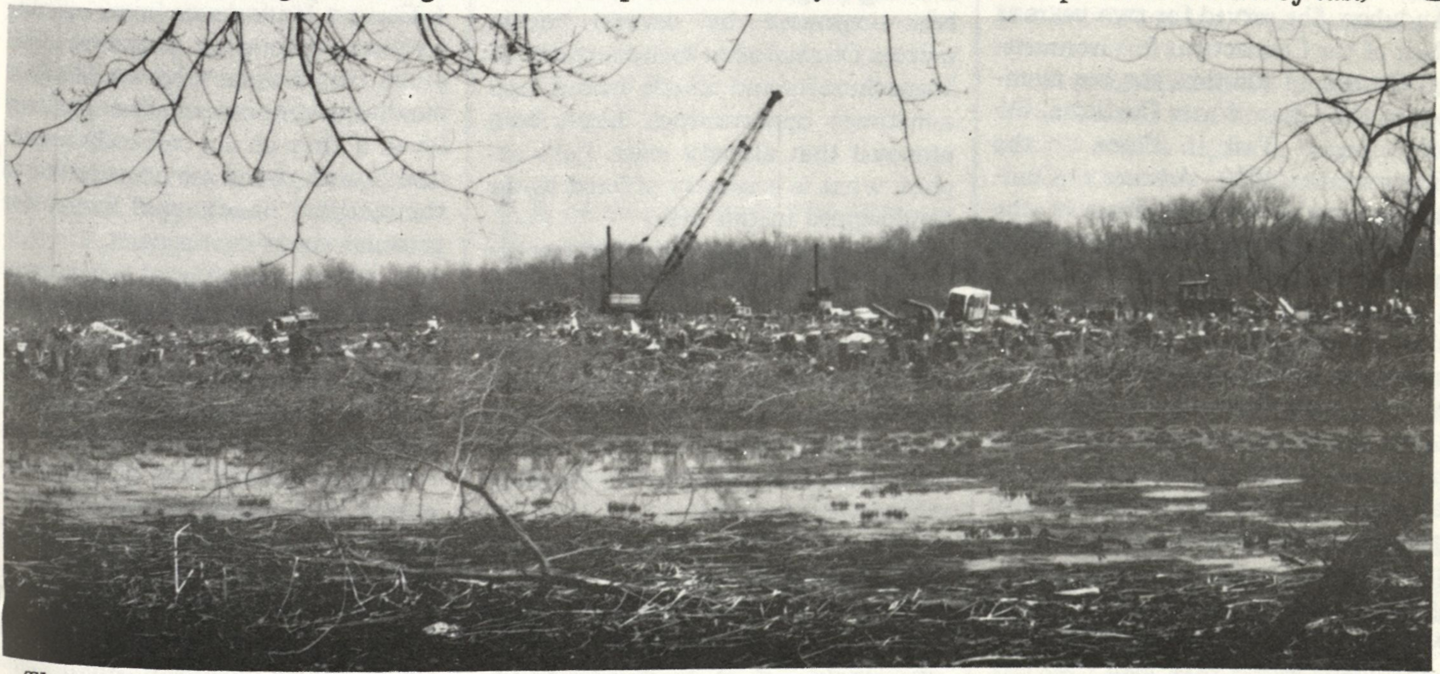
It is important, I think, that we understand that natural area preserves and sanctuaries are special in this day and age, and not necessarily synonymous with recreational space. The fact that Folly Brook is not designated as recreatonal space does not mean that it is not being used.

As we have seen, the Folly Brook forested floodplain has been used for educational and research purposes; it has been a refuge for a variety of wildlife species, and was an established and documented critical habitat. As a forested floodplain, it continued to function as it had done for years -- and was a supposed to for a long time to come.

Unfortunately, even after all these years of documented conflicts, wetland permits, and public hearings, some state and local agencies still are not 100 percent sure of all the bases to cover before they begin a project. Certainly, if a site is to be protected to the fullest, there must be a clear and coordinated commitment by government, the private sector, and all citizens of Connecticut. Constant awareness on all our parts will decrease the instances of making incorrect decisions.

How do we make sure the system works? A start would be for every citizen in Connecticut to make a pledge to live by a conservation ethic.

(The author is a senior environmental analyst with the DEP's Natural Resources Center. His primary area of responsibility involves broadening of public awareness of the functional value of wetlands. The clear-cutting at Folly Brook has been a personal concern of his.) ■



The same area looking toward the river after the clear-cutting. The crane in the center of the photo is on the barge seen in the previous photo. The tidal slough is now filled with branches and logs.

For Your Information

Environmentalist Honored

by
Leslie Lewis
Citizens' Participation Coordinator

IN MARCH OF THIS YEAR the annual New England Environmental Conference was held at Tufts University. This yearly gathering of over 1,000 environmentalists includes speeches by nationally-known figures, workshops on a variety of topics, and the presentation of the New England Environmental Awards. One of the 1988 recipients was Connecticut's own Joey Corcoran.

If you have followed environmental legislation at all over the past few years, chances are you have seen or heard Joey in action. As director of environmental affairs for the Connecticut Audubon Society, she has directed the legislative activities of that organization and provided timely information to Audubon members through the "Capitol Alert".

Just tracking legislation through a normal session could keep several people busy. Joey, however, wears several hats besides that of Connecticut Audubon. She served for two years as chair of the Connecticut Environmental Caucus. In addition, she is a member of the Clean Water Coalition, the Recycling Task Force, the Environment/2000 Advisory Committee, and is the vice chair of the Land Conservation Coalition of Connecticut.

During the 1987 legislative session, Joey worked on behalf of Connecticut's environmental community to strengthen the state's Inland Wetlands and Watercourses Act. She also played a key role in obtaining funding for both DEP's non-game wildlife program and the Recreation and Natural Heritage Trust. To quote Nancy Anderson, presenter of the awards at the New England Environmental Conference, "It is stated that Joey Corcoran has done more over the past two years than any single person to affect environmental quality, to ensure the passage of critical legislation, and to set the tone and direction for the future of Connecticut's environmental community's efforts." ■

CEQ Report

THE CONNECTICUT COUNCIL on Environmental Quality (CEQ) has recently released a special report on the use of wetlands creation to mitigate impact on wetlands. The creation of new wetlands to offset the loss of natural ones through development, road-building, or other activities is a topic of hot debate in environmental circles. The CEQ has divided the report into four sections: Background; Summary of Findings; Recommendations; and Procedural Questions.

The report can be obtained from the Council on Environmental Quality, 165 Capitol Avenue, Hartford 06106, or call 566-3510. ■

Handicapped Hunting

Recently, the need for handicapped hunting programs in Connecticut has been expressed by several media sources. Our state has been compared to Massachusetts and Rhode Island, and sometimes opportunities have been proposed that already exist. Let's explore what is presently offered to the handicapped in this area.

It has been suggested that a specific area be set up for handicapped deer hunting in Connecticut. Stone's Ranch Military Reservation, in East Lyme, has been accommodating handicapped deer hunters (paraplegics) since the area was established in 1980; vehicle use is otherwise restricted on the reservation.

The DEP's recently-opened, controlled-access pheasant hunting area, the Bear Hill Wildlife Management Area in Bozrah, has been used extensively by at least one handicapped hunter.

At present, all ungated roads state forests and wildlife managment areas are available to paraplegics using ATVs and four-wheel drive vehicles.

Gaining private land access to hunt deer in Connecticut is basically a function of landowner/sportsmen relations. Sportsmen must obtain written permission from the landowner, who, in essence, controls hunter density on his or her property. Opportunities exist for the handicapped person to obtain permission from a landowner – with minimal competition – for the entire archery, muzzleloader, and shotgun seasons, a total of 79 days.

What else might be offered to the handicapped hunter? Several feasible suggestions follow which would not risk the state's liability or impose on the Wildlife Bureau's current responsibilities.

1. Publish existing opportunities for the handicapped in the annual *Field Guide*.
2. Survey the handicapped for thei assessment of the need for additional hunting opportunities, as well as their interest in utilizing other options.
3. Evaluate responses from the other handicapped hunter surveys or questionnaires presently being conducted.
4. Contact landowners in our existing cooperative hunting programs; compile a list of those who would allow handicapped hunters on their property (even if they do not currently permit deer hunting); and provide referrals to the certified handicapped hunter for personal landowner contact.
5. Allow certified handicapped hunters access to gated roads on state forests and management areas by providing them special combination locks. Remove these locks after the season and change the combination for the following year. Those persons who misuse the privilege and allow others unauthorized access would have their permits revoked.
6. Coordinate Sunday pheasant hunts for the handicapped on state areas or in towns which currently permit hunts on licensed shooting preserves. ■

DEP Profile

The weird thing is not that he talks to the trees, but that he does it in Vietnamese

by
Robert Paier

"ONE OF THE LINES you often hear," says Fred Borman, of the DEP's Bureau of Forestry, "is that there are just two reasons for becoming a forester: Either you love trees, or you want to get away from people. For me, I like people and trees."

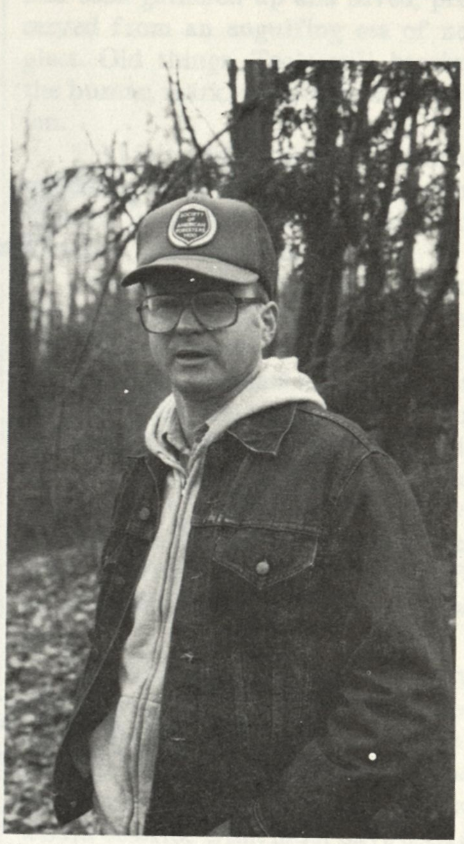
Fred Borman is a Forester I, whose areas of responsibility are Shenipsit, Nipmuck, and Nye Holman State Forests. Signing on with DEP in 1984, Fred is now a forest manager. His duties include providing technical forestry advice to private landowners in the towns of Enfield, Somers, Stafford, and Union. He visits landowners, giving advice on forest management and Christmas tree farming, and is involved in the state firewood lottery. And, his largest undertaking is the preparation of a management plan for the forest he is responsible for.

"Shenipsit State Forest includes 6000 acres," says Fred. "When I first signed on, my primary duty was to update the forest management plan for this forest. The first year, by drawing maps and using air photos, we were able to distinguish 100 different stands of trees. At that point, we determined which stands required immediate attention, and which did not."

The stands were classified according to age, crowded conditions, and hurricane damage. Also, because of the multiple-use approach that is taken in managing state-owned lands, many other disciplines of the DEP, including wildlife, fisheries, and parks and recreation, took part in the formulation of the plan. After an inventory of the forest was completed, Fred's task was to put together a plan which would remain in operation until 1995. It was decided that 200 acres of forest will be harvested each year, until 1995, when one third of the total land area of the forest will have been harvested. "Then, at that point," says Fred, "we will reevaluate."

The question of harvesting state forest land can be an emotionally-charged one. "Foresters," says Fred, touching on what is obviously a point he has given much thought to, "are not in the business for the money. Our concern, our mission, is to improve the health of the forest, for now and for future generations. We do harvest trees, and we do derive significant economic benefit from that harvest, but our goal, to which everything else is subordinated, is the maintainance of a healthy, vigorous, and fast-growing forest. Really, the foresters are the good guys."

POKING AROUND THE WOODS with Fred, you get a sense of the feeling he has for the trees. He knows where he's going in the woods; he knows the trees like old friends. How did he wind up being a forester? Fred's first interest was business management, a long way from the forest. He attended junior college in Boston for a couple of years, and then found himself serving a four-year hitch in the U.S. Air Force. Uncle Sam taught Fred to speak Vietnamese, and then sent him to Thailand, where he listened to and translated enemy radio communications. When he was discharged in 1976, Fred found that his general orientation to things and his long-term life goals had subtly shifted.



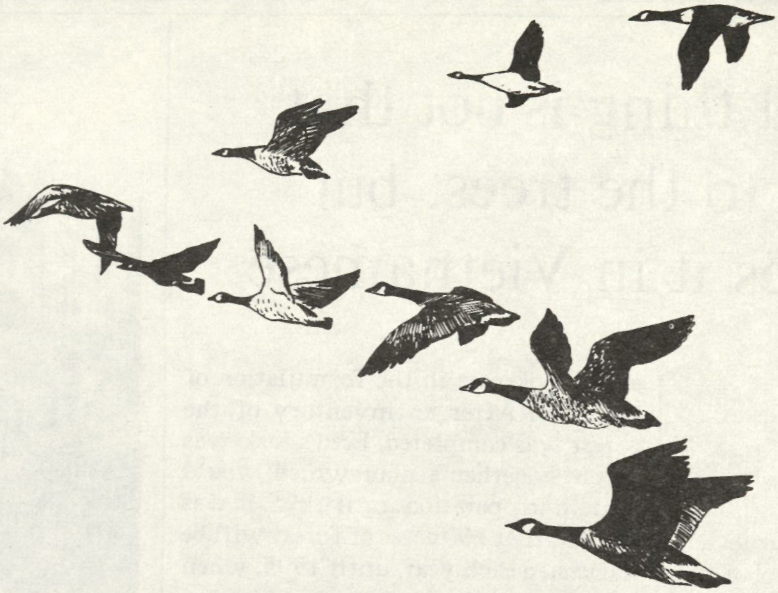
Fred Borman of the DEP's Bureau of Forestry.

"Well, what about forestry?" said Fred's wife one day. Well, what about it?

Fred enrolled at the University of Massachusetts in Amherst, graduating in 1979 with a degree in forestry. His first job was as a consultant for a private forestry company in western Connecticut. "The pay was low, but I got a well-rounded background in many areas of forestry; I knew that I had made the right career choice."

In 1984, Fred took the exam for the position of Forester I, passed, and that's what he's been doing ever since. "I hope to be doing this for a long time. Foresters think in the long term. Five and 10 years is really only a short time for the trees, and for foresters. During the time I spend with the forest, I hope I can make it better."

And, just in case any doubt remains, Fred *is* one of the good guys. ■



Ghosts of Mirror Lake

by
Feenie Ziner

I MISSED THE GEESE. Last year at this time, the pond outside my office window was speckled with Canada geese. Speckled is not exactly the right word. It was crowded – mobbed, even. At some mysterious signal they'd lift off in squadrons, battalions, darkening the sky, filling the air with alarums. "Awrk! Awrk! Awrk!" they cried, as if they were summoning one another for a flight to Tierra del Fuego or the northern shores of Hudson Bay. No other sound quite matched the drama, the urgency, the angst of their collective voice. Sometimes their honking interfered with telephone conversations. Once a New York editor planning to visit the campus asked, "How far north did you say Storrs was?" I imagined her poring over the L.L. Bean catalog for appropriate clothing.

Since I first came to Storrs, the size of the flock had increased year by year; now it numbered in the hundreds. Day after day and season after season they circled the campus in short, ragged Vs, returning always from their abortive flights to settle again on the shining surface of the pond.

There was something flattering about their presence. I recall feeling a kind of satisfaction, almost pride, that these great wild creatures freely chose to spend their time at the university. They were, it seemed to me, our honored guests, proof that this was a good, benign institution which, despite its eager cooperation with high technologies and war-related research, still retained its respect for nature and offered succor to visitors from exotic places. The Arctic tundra. Labrador. They bore within them the memory of icebergs, glaciers, harbor seals. If they chose to stay with us for a while, we civilized folk couldn't be all bad.

Of course their droppings made the lawns around the pond a soggy, smelly mess. From a distance, they were elegant-looking creatures, their black, white, and mauve plumage as starkly beautiful as if they'd been designed by an Inuit artist. But close up they tended to become just geese, a crowd of creatures with an awkward, convalescent waddle who regarded humans with cautious disdain. They shared their air and water with an equally large and growing flock of mallards, a far more domestic species given to raucous laughter in the middle of the night. But the ducks lacked the grandeur of the geese.

The apparent reason for the explosive growth of the waterfowl population around Mirror Lake was, however, not a natural phenomenon but a highly dependable gentleman who came each day with large bags of stale bread solicited from bakeries in the area; as much as a hundred pounds a day. Any morning of the week you could see his slight figure standing at the edge of the lake, birds swarming at his feet. It was clear that this was no passing impulse on his part, but a deep, self-imposed commitment.

It was inevitable that the university would intervene, that the gentleman, an antique dealer, be asked to stop. Because the geese were not migrating. They were becoming dependent upon the most undependable of all species, man. How many eons had it taken to evolve their adaptive behavior, to arrive at this ingenious solution to changes in climate? What exquisite machinery in their brain gave rise to the precision of the patterns of cooperation, patterns perfectly calibrated to offer each goose maximum freedom and yet the maximum security that enable joint, heroic journeys? Something clearly was going wrong with their programming. Their circuits were being clogged with Wonder bread. But the feeding went on.

The university posted signs saying PLEASE DON'T FEED THE BIRDS. University scientists pointed out that Mirror Lake simply could not support such a population. The water was becoming badly polluted. There was danger of botulism. Still, the antique dealer persisted.

In some desperation, the university contacted the Franklin Wildlife Management Area, a part of Connecticut's Department of Environmental Protection. The people at Franklin said that Maine was looking for geese to establish flocks. So one fine summer day several wildlife specialists appeared on campus bearing a flexible fence. Apparently geese are a whole lot smarter in the air than they are on the ground, for the unsuspecting birds marched in orderly rank through the narrowed opening, right into the back of a Mainebound truck. Eighty strong – banded and crated, five to a box – they made this curious migration on superhighways. At a perfect habitat in south-central Maine, the biologists released them into the wilderness. But banded birds were back on Mirror Lake before the men who escorted them were back in Connecticut.

Around Thanksgiving time last year, there were jokes in the halls about bagging the geese for the Willimantic soup kitchen, but to the best of my knowledge, no one ever tried to solve the problem that way, perhaps because as a society we do not recognize edible poultry without Saran Wrap.

One can only imagine the rancor that must have grown around the issue, the feeder of the birds feeling like David defying a bureaucratic Goliath, the university frustrated at the failure of its finest tools – reason, knowledge, and persuasion. But while earnest anger deepened, the geese continued to circle the library, crying to one another in voices bred for epic flight. They were thwarted. Compromised. Seduced.

When I returned to school this fall, the geese were gone. Prolonged drought had lowered the level of the pond and so increased the concentration of bacteria that more than 60 ducks had indeed died of botulism. Elsewhere in the state, large numbers of geese were dying, too. There was an article in the campus paper reporting that the state legislature had passed a bill imposing a $35 fine for feeding the birds.

I MISSED THEM MORE than I thought I would. There seemed something oppressive about the silence on the silver pond. The geese had been a real presence, the flock so much more than the sum of its parts. The sky looked vacant, unmarked by their wavering lines of flight. But as much as I missed the geese, my first loyalty was to a fellow human.

So I drove down a narrow road one cloudy afternoon to talk to the bird lover, to hear, if I could, his side of the story. I don't know why I was filled with apprehension, but the road itself seemed to close in upon me. There were stretches of dark pine bordered by a deep ravine, and a shallow stream in which a single Canada goose stood sentinel. I felt as if I were entering a forbidden forest, like someone in a Grimm fairy tale. I was an intruder. It was none of my business. It was for me a whim, a curiosity, while for the man who fed the birds it was a passion. What right had I to survey his wreckage?

Two dogs leaped out at me as I entered the driveway, dogs on long ropes who strained and barked and subsided once I'd passed. Close to the shop sat a collared cat, also attached by a long rope to a short stake.

No one was in the the shop, but all its objects were set out with care, lovingly dusted and polished. Tables set for dinner parties past, as if time itself had been gathered up and saved, preserved from an engulfing sea of neglect. Old things. Tools still bearing the human mark, rescued from oblivion.

Yet I felt cold, intrusive, and not at all reassured by the approach of a slim woman in a gray coat who seemed, somehow, enveloped in solitude.

I cast about for small talk, thinking to get around to the subject by degrees, but I was as desperate now to make a connection as the dogs had been outside. There were only this woman and myself in the shop, and surrounding us was the echo of conflict that had, in its own way, filled the heavens. So, like the dogs, I lunged at her with my question. "Are you the wife of the man who used to feed the geese?"

She turned away ever so slightly and looked out the window for a moment. I felt in her a person whose singular pride lay in speaking for the speechless. I tried to imagine how she would describe what must have been a bitter defeat. When she turned to me again, her eyes were magnified by grief.

"I know they've passed a law," I offered, "and they seem to be gone..."

"Yes," she said. "They passed a law. But my Leo died of a heart attack in March. Can't you people leave him alone, even now?"

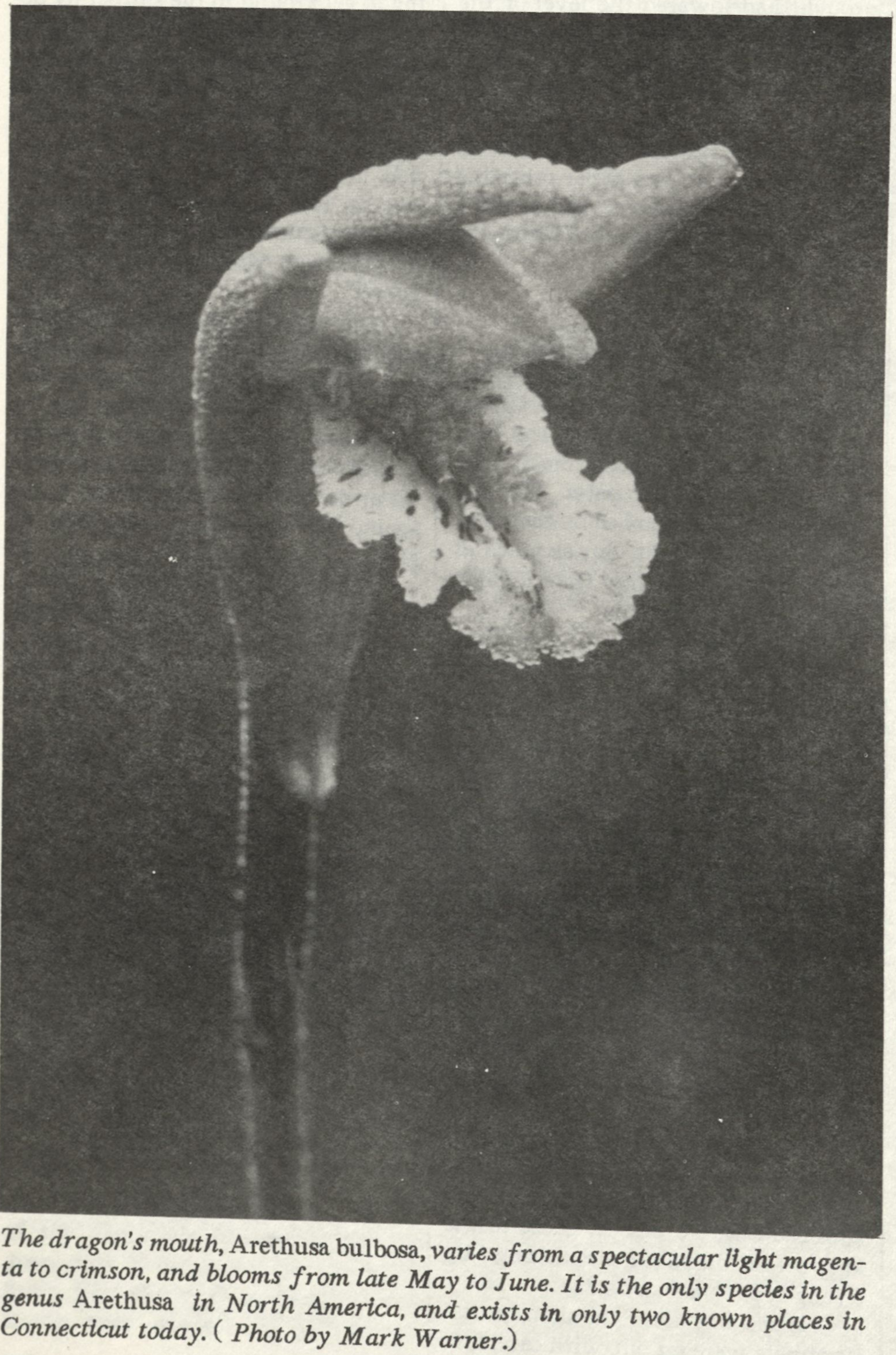
And she walked out, leaving me alone to deal with the ghosts as best I could. ■

(*This article first appeared in the* Northeast *section of* The Hartford Courant. *It is reprinted here with permission of the author.*)

The Natural Historian

The Extraordinary Beauty of the Orchid

by
Chris Horan
Writing Intern
English Department
The University of Connecticut
The Connecticut State Museum
of Natural History



The dragon's mouth, Arethusa bulbosa, *varies from a spectacular light magenta to crimson, and blooms from late May to June. It is the only species in the genus* Arethusa *in North America, and exists in only two known places in Connecticut today.* (*Photo by Mark Warner.*)

ORCHIDS are so well known for their extraordinary beauty that "orchidaceous" has become a synonym for ostentatious or flamboyant. Although Connecticut's orchids are smaller than their more spectacular tropical cousins, our species include some of our most beautiful native flowers.

Unfortunately, Connecticut's orchids are not easily found in the natural state. In Connecticut, there is no state legislation protecting wildflowers. Only one orchid, the small-whorled pogonia (*Isotria medeoloides*), is on the "U.S. Endangered" list of species which is protected by law. Under no circumstances should wild orchids be picked or moved from their native habitats.

For these glorious wildflowers to survive, they need to be left alone in their natural environment, and the first step in bringing that about is to increase public awarenss of their plight. As man cuts trees, drains wetlands, and builds new homes, these brightly-colored flowers of unusual and exotic design decrease in number. Among the orchids in the state are the pink lady's slipper, the dazzling dragon's mouth, the pogonia, and the yellow-fringed orchid.

THE PINK LADY'S SLIPPER, *Cypripedium acaule,* blooms from early May to June and usually varies in color from light pink to crimson. Although adults and children alike are enchanted when they spot a lady's slpper in the woods or meadows, we are all urged never to pick it or try to transplant it. Even the experts can't keep the pink lady's slipper alive once transplanted.

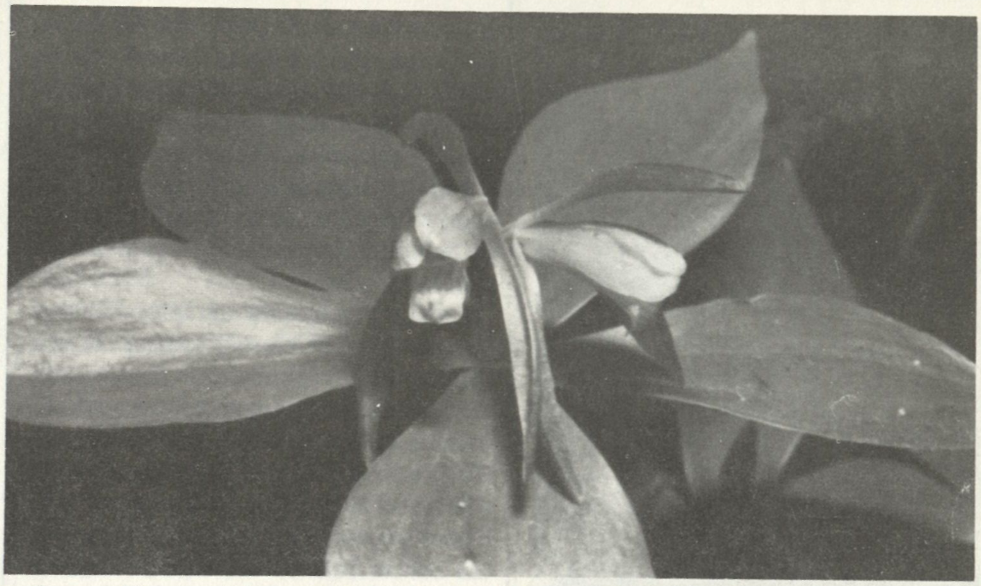
The federally-protected small-whorled pogonia is a rare woodland orchid. It has an unspectacular greenish-yellow flower. The small-whorled pogonia blooms in the spring and is known to exist in only a few places in New England.

Its relative, the pogonia, or snake-mouth (*Pogonia ophioglossoides*), has a larger blossom. It blooms from June to July, and smells faintly of raspberry. It has crimson-pink flowers, and is found in sphagnum bogs and wet meadows.

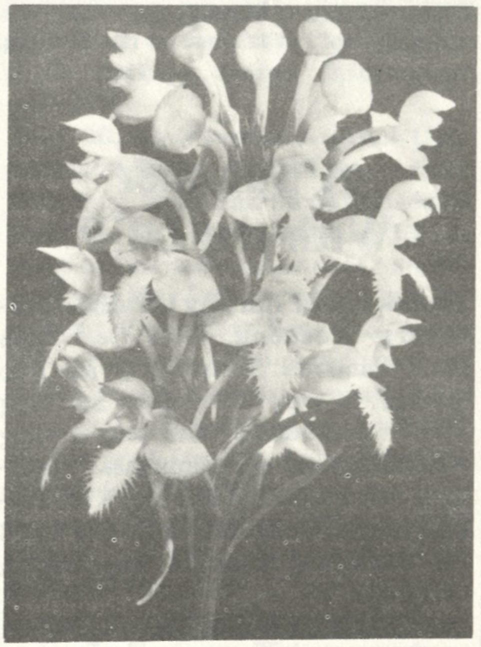
The dragon's mouth, *Arethusa bulbosa*, varies from a spectacular light magenta to crimson, and also blooms from late May to June. It is the only species in the genus *Arethusa* in North America, and exists in only two known places in Connecticut today.

THE WHITE-FRINGED ORCHID, *Platanthera blephariglottis*, has become harder to find in Connecticut because of the draining and filling of wetlands and bogs. Its scientific name means "eyelid tongued."

The yellow-fringed orchid, *Platanthera ciliaris*, grows in moist open fields, but there is only one known meadow in Connecticut which still has a high population of this tall handsome species. This plant blooms from July to early August, when the flowers form a showy spike of yellow to orange blossoms.

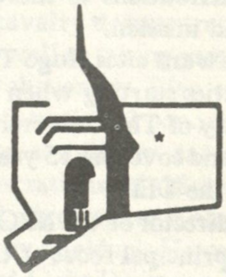


The small-whorled pogonia, Isotria medeoloides, *is the only Connecticut orchid on the U.S. Endangered list, although all are threatened by human picking and development. No wild orchid should be picked or moved. The small-whorled pogonia, a rare woodland orchid, has an unspectacular greenish-yellow flower. The small-whorled pogonia blooms from spring to summer, and is known to exist in very few places throughout New England. (Photo by Les Mehrhoff.)*



The white-fringed orchid, Platanthera blephariglottis, *has decreased in Connecticut because of the draining and filling of wetlands and bogs. Its scientific name means "eyelld tongued." (Photo by Arlene Rich.)*

AS PART of its continuing effort to support science and environmental education and to increase public awareness of our natural heritage, the Connecticut State Museum of Natural History has produced "Connecticut Orchids," one of a series of photographic migratory exhibits now available for a small fee to schools, nature centers, libraries, and other organizations. For further information on orchids in Connecticut, contact the DEP's Natural Resources Center, 165 Capitol Avenue, Hartford 06106 (Phone: 566-3540) or the Connecticut State Museum of Natural History, The University of Connecticut, Box U-23, Storrs 06268 (Phone: 486-4460). ■



The Bulletin Board

Hugo Thomas, director of DEP's Natural Resources Center.

Thomas Receives Award

Dr. Hugo F. Thomas, of Coventry, state geologist and director of the DEP's Natural Resources Center (NRC), has been selected as one of three recipients of the John Wesley Powell Award for Citizen's Achievement by the U. S. Geological Survey.

In notifying Dr. Thomas of the award, Dallas Peck, director of the Geological Survey said, "This award was named for the second director of the U. S. Geological Survey (USGS) who was responsible for setting the high standards that govern our organization today. The award is given to individuals who have made significant and beneficial contributions to the USGS programs and mission."

The award cites Hugo Thomas for his activities starting when he was on the faculty of The University of Connecticut and covering 15 years of service with the DEP.

"As director of the NRC, you have been the principal focus of USGS cooperation with Connecticut in all areas of the earth sciences and associated computing. You were one of the first in the state to recognize the potential of Geographic Information Systems (GIS) for managing, displaying, and analyzing natural resources information," Peck said. “"You also had the foresight to recognize the necessity of comprehensive water use information in order to manage this important resource."

Other recipients of John Wesley Powell Awards were Professor Harold Moellering of Ohio State University, in the academic category, and author/journalist John McPhee of Princeton, N.J., in the private citizen category. The awards were presented by USGS Director Dallas Peck in a ceremony in the auditorium of the USGS National Center in Reston, Virginia.

Hugo Thomas has been director of Connecticut's Natural Resources Center since it was organized in 1973. In 1983, he was recognized by the state's Management Advisory Council with a Distinguished Managerial Service Award. ■

A Summer With the DEP

June 4-5: DEP Family Outdoor Discovery Weekend, Wolf Den State Park, Pomfret. Saturday, 9 a.m., to Sunday, 2 p.m. Two days learning about the outdoors with outstanding naturalists and environmental educators. Adults, $20; under 16, $15. Preregistration required; call 566-8108 for workshop schedule, registration materials.

June 6-12: National Fishing Week — 1988, statewide. Displays, demonstrations, workshops at various locations. Open houses at Quinebaug Valley (Central Village, 564-7542) and Burlington (673-2340) fish hatcheries – 10 a.m.-3:30 p.m. Information: 566-4477

June 11: Free Fishing Day in Connecticut, statewide. Fish free, no license required, for this one day — anyplace in Connecticut. Call for more information on activities: 566-4477. Please remember, all other regulations (limits, minimum sizes, etc.) apply.

June 12: Day-long Revolutionary Encampment by the Second Connecticut Regiment, Fort Griswold Historic Park, Groton. 10 a.m. to sunset. The Second Connecticut Regiment will offer a day of military drills and demonstrations of Revolutionary War camp life. No charge. Information: 445-1729; 889-6275.

June 19: Class-B Orienteering Meet, Paugusset State Forest, Newtown 1 p.m.-4 p.m. Sponsored by the Western Connecticut Orienteering Club. Individuals, $3; family maximum, $6. Information: Don Tall, 272-7354.

June 25 to July 15: Nature Photography Display, Dinosaur State Park, Rocky Hill. Entries selected from a competition sponsored by the Friends of Dinosaur State Park and the Wethersfield Nature Center...through July 15. Tuesday through Sunday, 9 a.m. to 4:30 p.m. Admission is $1 for adults; 50 cents, 6-17 and seniors. Information: 529-8423.

June 26: The Great Pachaug Canoe Race, Pachaug Pond, Pachaug State Forest, to Hopeville Pond State Park. Sign-up: 9:30-10:30 a.m. Race starts at 11 a.m. Six miles for novices or recreational canoeists; 7.5 miles for racers. Sponsored by Connecticut Canoe Racing Association. Entry fee: $6. Information: Jim Kendall, 376-3685; Bob Bromley, 376-4009.

July 4: Day-long Revolutionary Encampment by the Second Connecticut Regiment, Fort Griswold Historic Park, Groton. Starting after Groton's Fourth of July parade, until sunset, the Second Connecticut Regiment will offer a day of military drills and demonstrations of Revolutionary War camp life. Also readings of the Declaration of Independence with appropriate musket fire. No charge. Information: 445-1729; 889-6275.

July 9: Fireworks Extravaganza, Fort Griswold Historic Park, Groton 6 p.m - 9 p.m., band and musical entertainment; the biggest fireworks display in New England, by Grucci, begins at 9:00 p.m. The finale of the 10th Annual Groton Week festivities. Information: 536-2669; 445-1729. **Rain date: July 10.**

July 13: Dinosaurs — Why We Don't Have Them, Dinosaur State Park, Rocky Hill. 9:15 a.m. Family Outdoor Discovery Program. Limited to 50; pre-registration necessary — call 566-8108. Admission to exhibit center: $1, adults; 6-17, 50 cents; under 6, free.

July 16: Summer Music: Richard Stoltzman, Clarinet, Harkness Memorial State Park, Waterford. 8 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting, for a program that will include Mendelsohn, Rossini, Prokofiev. *** Advance ticket sales: Summer Music Inc., 300 Captain's Walk, Suite 503, New London, CT 06320. Tent seating (advance or at gate, if available), $15-22. Individual lawn seats (bring your chair or blanket), advance, $8-$10; at gate, $10-$12. Series subscriptions also. Information: 442-9199. Grounds open at 6 p.m. for picnics with preconcert music.**

July 19: Summer Music: Odetta and the Black Eagle Jazz Band, Harkness Memorial State Park, Waterford 8 p.m. First in a series of three Tuesday jazz concerts at Harkness. Tickets, see above (July 16); information 442-9199.

July 19-22: Discovering Dinosaurs. Four-day Workshop at Dinosaur State Park, Rocky Hill. A four-day workshop where children who have completed grades 3-5 can explore new ideas about the anatomy of reptiles and amphibians, dinosaur behavior, evolutionary time lines, primitive insect and plant forms. Limited to 15; 9 a.m. to noon; pre-register, 529-8423.

July 23: Garrick Ohlsson, Piano, Mid-summer Mozart, Harkness Memorial State Park, Waterford. 8 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting, for an evening of Mozart. Tickets, see above (July 16); information 442-9199.

July 29-31. DEP Family Outdoor Discovery Weekend, Rocky Neck State Park, Niantic. Friday night to Sunday, 2 p.m. Spend a weekend learning about the outdoors with naturalists and environmental educators. Adults, $20; under 16, $15; plus campsite fee of $8 per family. Call 566-8108 for schedule; preregistration required.

July 30: Summer Music: Hermann Baumann, French Horn, in an all-Baroque Program, Harkness Memorial State Park, Waterford. 8 p.m. Handel, Vivaldi, and Telemann ... with the Harkness Festival Orchestra, Peter Sacco conducting. Tickets, see above (July 16); information 442-9199.

July 30: Summer Music Children's Concert: Hermann Baumann, French Horn, Harkness Memorial State Park, Waterford. 1 p.m. Selections from Saturday evening's program; plus storytelling, dance, and entertainment, especially for children. Admission to concert is free. Park has a $2 parking charge. Information: 442-9199.

July 30: Fourteenth Annual Connecticut River Raft Race — Hurd State Park (East Hampton) to Haddam Meadows State Park (Haddam) 10 a.m. to 6 p.m. Fourteenth Annual Connecticut River Raft Race, sponsored by Connecticut River Raft Race, Inc. About 100 rafts, over 3,000 participants expected. Music, food, drink available at the race finish. Information: Kimberly Fischburg, 3 Meadow Lane, Norwich, CT 06360; 887-6969.

August 2: Summer Music: The Dukes of Dixieland, Harkness Memorial State Park, Waterford 8 p.m. Second in a series of Tuesday evenings of jazz at Harkness. Tickets, see above (July 16); information 442-9199.

August 6: 75th Anniversary Celebration — Connecticut State Parks System, Rocky Neck State Park, Niantic. 10 a.m.-3 p.m. at the Pavilion, rain or shine. Public invited. Formal anniversary ceremonies. "Then and Now" exhibits and demonstrations. Lifeguards in period costumes. CCC alumni. Guided nature walks, a Dixieland concert by the "Harmonious Marching Irregulars," a "Big, Big Birthday Cake" (not guaranteed edible), antique bathing suit, kite flying, sand castle contests, more. Parking: $4. Information, 566-2304; 566-5599.

August 6+: Connecticut Forest and Park Association 75th Anniversary Series of Hikes and Tours of State Parks. Hike on blue-blazed trails in state parks; take a tour highlighting interesting natural and historical features. No charge. For dates and information on these Saturday and Sunday hikes: write Linda Rapp, CFPA, 16 Meriden Road, Route 66, Middletown, CT 06457; or call 346-2372.

August 6: Israeli Violinist Carmit Zori in a Gypsy Night, Harkness Memorial State Park, Waterford. 8 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting, in an evening of Hungarian and Roumanian music. Tickets, see above (July 16); information 442-9199.

August 6: Summer Music Children's Concert: Gypsy Music, Harkness Memorial State Park, Waterford. 1 p.m. Selections from Saturday evening's program; plus storytelling, dance, and entertainment, especially for children. Admission to concert is free. Park has a $2 parking charge. Information: 442-9199.

August 13-14: 'Patriot's Weekend,' Revolutionary War Encampment and Reenactment, Putnam Memorial State Park, Redding/Bethel. 11 a.m. - 4 p.m., Saturday and Sunday. Members of regiments from all over the East will represent American, British, and other Revolutionary forces in authentic military drills, artillery demonstrations, cavalry demonstrations, and parades as well as taking part in a dramatic Revolutionary War era battle each day (Saturday, 3 p.m.; Sunday, 2 p.m.). Tour a military encampment, see demonstrations of 18th Century crafts, and vignettes of Colonial life. Sponsored by Sheldon's Horse, the 2nd Continental Light Dragoons. Information: 938-2285; Sal Tarentino, (evenings) 367-1796.

August 13: Day-long Revolutionary Encampment by the Second Connecticut Regiment, Fort Griswold Historic Park, Groton. 10 a.m. to sunset. The Second Connecticut Regiment will offer a day of military drills and demonstrations of Revolutionary camp life. No charge. Information: 445-1729; 889-6275.

August 13: Summer Music: The Empire Brass, Harkness Memorial State Park, Waterford. 8 p.m. Tickets, see above (July 16); information 442-9199.

August 16: Summer Music: Sonny Rollins, Jazz Saxophone, Harkness Memorial State Park, Waterford 8 p.m. The final Summer Music Tuesday jazz concert. Tickets, see above (July 16); information 442-9199.

August 19,20, and 21: Quinnehtikqut Rendezvous and Heritage Festival, Haddam Meadows State Park, Haddam. Friday, noon-6 p.m.; Saturday & Sunday, 9 a.m. -6 p.m. A weekend that combines a black powder muster and demonstrations of 17th through 19th century American life. "Mountain Men" recreating lives of earlier generations. Indians in tribal regalia in drumming, dancing, and song. Authentic pre-Civil War and Native American arts and crafts and foods. Sponsored by the Spirit of Quinnehtukqut, Inc. Admission: $3, adults; $2, kids 6-12. Information: 282-1404.

August 20: Summer Music: Summer Pops at Harkness, Harkness Memorial State Park, Waterford. 8 p.m. The Harkness Festival Orchestra, Peter Sacco conducting, in the final concert of the Summer Music series. Tickets, see above (July 16); information 442-9199. ■

Long Island Sound Conference

On Saturday, June 4, 1988, the Long Island Sound Taskforce, in conjunction with the Connecticut Sea Grant Marine Advisory Program, will present the 10th Annual State of the Sound Conference. The program will be a special symposium on the latest research findings of the federally-funded Long Island Sound study, and their implications for the health of Long Island Sound.

Included in the agenda is a description of the low oxygen (hypoxia) event which occured in Long Island Sound during the summer of 1987, followed by a discussion of the effect of this hypoxia on the living marine resources of the Sound. Speakers will describe the participation of the public in the Long Island Sound study, the computer simulation of Long Island Sound, and the effect of sewage effluent.

The conference will run from 8:30 a.m. to 3:30 p.m. at the Stony Brook Campus of the State University of New York. The public is invited. Registration, including lunch, is $15. For further information, please call: Long Island Sound Taskforce — (203) 327-9786; or Connecticut Sea Grant — (203) 445-3454. ■

Soil Packet

"Tips on Protecting Your Soil," a fact sheet with information on what you can do to conserve soil in your backyard, is available as part of a soil resource information packet available from Connecticut Soil and Water Conservation Districts.

"The soils information packet is suitable for elementary school science classes, scout troops, youth gardening programs, and other civic groups," says Mort Gelston, president of the Connecticut Association of Soil and Water Conservation Districts.

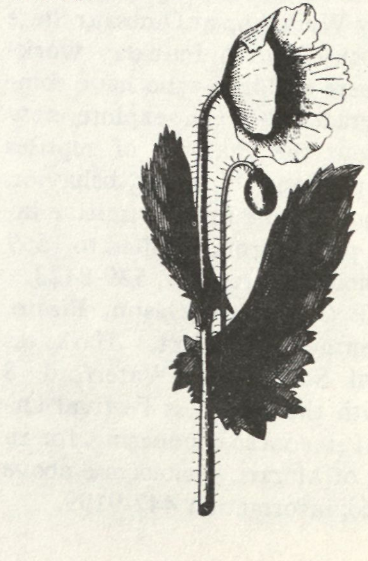
According to Gelston, the information can help you with such projects as erosion control in your own backyard, school yard, around town offices and public buildings, along public walkways, and along streams.

The soils resource packet includes a "Soils Facts" sheet produced by the National Wildlife Federation, in cooperation with the Soil Conservation Service. Also in the packet are sample lessons and ideas for activities and projects; brochures and booklets on soil conservation careers, and a list of other helpful resources. To obtain the packet, please call your local conservation district: Fairfield — 742-5453; Hartford — 688-4946; Litchfield — 567-8288; Middlesex — 345-3219; New Haven — 269-7509; New London — 887-4163; Tolland — 875-3881; Windham — 774-0224. ■

Museum Events

The Third Annual Wildflower Festival on Sunday, June 12, 1-5 p.m. by The Connecticut State Museum of Natural History at The University of Connecticut in Storrs will show more than 150 varieties of living wildflowers in addition to slide talks, demonstrations, and workshops. This year's Festival will be in the air-conditioned Jorgensen Auditorium at UConn.

Among the lectures will be Lillian and Don Stokes, authors of *The Secret Life of Wildflowers* and other nature books. The Stokes will autograph copies of their books after their lectures at 3 p.m. and 4:15 p.m. Demonstrations and workshops include "Dried Flower Arranging" and "Make Your Own Prints From Flowers." Admission is $1 for Museum members, $2 for nonmembers. For information about this and other Museum events, call (203) 486-4460 or write the Museum at UConn, Box U-23, Storrs, CT 06268. ■



Letters to the Editor

[illegible]e erected 36 of your bluebird houses, and now we have bluebirds. Thanks. Come and see 'em.

Harold E. Whitcher
Wallingford

Keeps me up to date on what the latest thinking and action is about our environment.

Ray Dexter
Cromwell

Articles on flora and fauna native to the state are of the utmost value, especially for parents informing their children.

Robert Lewis
New Haven

Your new "Map of the Month" is a great help. Keep up the good work.

Jonathan P. Dunham
Southington

This *Bulletin* is a fine instrument for cooperation among all parties involved in making real environmental improvements.

T.S. Turner
Plymouth, Vermont

At 77 years old, I learn something new each day. I enjoy reading each new issue of the *Bulletin* and learning more about the past and present of our state of Connecticut. The *Bulletin* reminds me of when I attended school and of another magazine kept in the classroom for reading and discussion. That magazine was the *National Geographic.*

Why not supply copies of the *Bulletin* to every school and library in the state for all children and adults to read as a teaching tool and good reading? If you have old copies, why not send them to the schools and libraries and legislators. They don't know what they are missing.

John D. Broderick
Beacon Falls

Thanks for the good suggestion. We have some back issues of the Bulletin *which we distribute over the course of the year at conferences and other public events. As long as our supply lasts, we would be delighted to send some out to interested teachers. Let us know, and we'll do what we can. Ed.*

The Folly Brook episode is a sad reminder that the stewardship ethic is not yet everyone's concern. Humanity is only one small part of the total earth system, but that small part has achieved unprecedented influence over the whole system. In this balanced natural system, every act which has an effect on the land, the air, or the water, will bring about some kind of reaction, some compensatory realignment, as a response. As we are constantly pushing and pulling the natural system, it becomes progessively more difficult for balance to be regained. We must be sensitive to this balance, and aware of the possible consequences of all our actions. Without our thoughtful care and action today, tomorrow may be as desolate as the floodplain forest at Folly Brook.

Richard Hyde
Assistant Director
Natural Resources Center

The Citizens' Bulletin welcomes letters from our readers on matters of environmental interest. Please make letters no longer than 100 words. Letters will be subject to editing.

Endnote

"Those who vow to do good should not expect people to clear the stones from their path on this account. They must expect the contrary: that others will roll great boulders down upon them. Such obstacles can be overcome only by the kind of strength gained in the very struggle. Those who merely resent obstacles will waste whatever force they have."

Albert Schweitzer

Somehow, the Citizens' Bulletin will make it all better.

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